PRELIMINARY DESCRIPTION OF DOUBLE DRIVE TUBE 68002/68001; Carol Schwarz[1], Richard V. Morris[2], and Randy L. Korotev[3], [1]Lockheed-ESC, 2400 NASA Road 1, Houston, TX, [2]NASA-JSC, Houston, TX, and [3]Dept. of Earth and Planetary Sciences, Washington University, St. Louis, MO.

Apollo 16 double drive tube 68002/68001 has been opened and information on its contents and structure is now available. The sample was taken in April 1972 at Station 8, a gently undulating surface of South Ray Crater ejecta material. The tube was driven into the surface about 2 m from the edge of a 10-15 m diameter crater in an area where small (<0.5 m diameter) craters are common [1]. Fragments of the <1 cm diameter size are most abundant in this area [2]. 68002, the top section, and 68001, the lower section, have a combined length of about 61 cm.

68002 was extruded in February 1993. The apparent length of the core before extrusion, from x-rays, was 27.4 cm. The length after extrusion was 26.7 cm; thus compaction during the extrusion was 0.7 cm. A weight of 583.13 g was calculated from previously weighed core hardware.

The color of the soil of 68002 was determined to be 10YR 5/1 on the Munsell color scale and no distinct color boundaries were observed during dissection. A void was present from the lunar surface to about 3.5 cm depth. The top 4 cm was loose and below that the soil was noticeably more coherent and compact. Friable soil clods were abundant from 9.5 to 14.5 cm from the lunar surface.

A close examination of particles >1 mm from the first and third dissection passes showed that about 80% (by number) of the particles are in the 1-2 mm size range, 18% are 2-4 mm, <1% are 4-10 mm, and <1% are greater than 10 mm in diameter. Lithology of the >1 mm fraction was determined by binocular examination of the particles from the first and third passes and is summarized as follows: 58% are various types of breccias, 16% are dark, coherent, fine-grained particles, 14% are glasses including glass shards, agglutinates, and glass coated breccias, 11% are white or light gray (anorthositic), and less than 1% are basalts.

Eight particles given individual split numbers included several small glass spheres, a chip with a possible metallic coating, a 14 g anorthositic rock, a flat black fine-grained rock, and several breccias. Three bulk samples were taken from the third pass under red light conditions for future thermoluminescence studies.

68001, the bottom section of the core, was extruded in December 1993. The apparent length of the core before extrusion was 34.9 cm. The length after extrusion was 34.1 cm, for a compaction of 0.8 cm. A weight of 839.7 g was calculated from previously weighed hardware. The color of the soil of 68001 varied from 10YR 5/1 to 7/1 with several color boundaries observed after derinding. A void present after extrusion extended from the top end to about 1.5 cm. 0 to 10 cm from the top end was a dark layer, approximately 10YR 5/1 on the Munsell color scale. From 10 cm to about 13 cm is lighter colored soil which contrasts along the upper boundary adjacent to the top layer. The color of this layer is approximately 10YR 7/1 to 6/1 with mm-sized light gray fragments visible. At 13 cm the color darkens to about 10YR 5/1, lightening gradually towards the bottom. More information on 68001 will be available as dissection passes are completed.

FeO and I_s/FeO depth profiles for section 68002 are shown in Figures 1 and 2. To smooth out sampling artifacts, the data are three point sliding averages, except for the anomalous point in the FeO data. The anomalous point probably represents a chance occurrence of a large metallic iron particle in that particular sample. The FeO content is nearly constant and averages 5.63(20) wt. %. All of the soil in the upper core section is mature [3]. There are no significant discontinuities, although the maturity generally decrease from the lunar surface.

References: [1] LSPET (1972), in *Apollo 16 Preliminary Science Report*, p. 7-43; [2] Apollo Lunar Geology Investigation Team (1972), in *Interagency Report: Astrogeology 51*, p. 125; [3] Morris, *PLPSC9*, 2287, 1978.